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9/13/70

Dear Mr. Hoch,

Please allow me to thank you for your letter of the 6th with the very interesting enclosure. This past week I have taken up residence at the University and have not been able to pick up the mail arriving at my old address.

I will gladly provide the comments you requested, although I have not read the piece in minute detail, nor could I understand some of the technical aspects. If the criticisms which follow seem negative, it is because I wish to point out what I believe are the faults in this work. In general, I found it rather good. Yet, even the most minor flaws can ruin the best work.

At page 1, paragraph 2, you call upon the analysis of Josiah Thompson as presented in Six Seconds in Dallas. My notes indicate that you refer to Thompson's work on the head shot on other occasions. I would advise that this analysis be avoided whenever possible for it is, from beginning to end, fake. Borrowing from Dick (Bernabei), it is nothing but psuedo-scientific razzle-dazzle. Let me explain.

For all of Thompson's computations to be correct or valid, the exact time of exposure of each Zapruder frame must be known, as well as the exact interval between frames. As you must know, the FBI's speed of 18.3 frames per second is an average. Camera's such as Zapruder's do not run with any micro-precision. Thus, we cannot really know the exact times involved with the frames, and the calculations from~~X~~ Tink's equasions could be over 100% in error. Or, consider the question of exactly when the bullet(s) struck. Did one hit between 312 and ~~XXX~~ 313, at 313, at the beginning of 313 or the end, etc.? Again, the whole thing could be 100% off.

As for the measurements on which Tink's calculations were based, it is important to note that the reference points are not visible in each of the frames measured, which leads one to ask how those measurments were obtained. I studied this long ago, but do not have the details available to me now. As I recall, Tink used a point where the handhold attached to the car. This is not visible in each frame, and is too streaked in others to be of value. Tink couldn't have accomidated for this by referring to other frames for, as his table shows, the size of other constants changes from frame to frame, at least those which he measured.

My personal belief is that Tink's head shot analysis was contriv as a cheap way to lend a scientific touch to something which was rather obvious. All that I would be willing to say from my own studies (superimposing the frames and viewing the film) is that there is a slight forward-downward motion of the heas between 312 and 313 followed by a massive and obviously forceful backward motion which becomes a leftward motion.

At the bottom of page 2, you assert that the matter exploding out of the head goes primarily forward. I do not believe this is so, and I think the film is deceiving here. I did much analysis of the dispersion of the tissues coming out of the head and worked myself to this conclusion: All that can be said is that matter is rupturing out of the head in the forward area. (I use rupturing as opposed to exploding for I believe that is a more accurate description). We know from the Clark Panel that the gaping defect was on the right front and side of the head, not just on the side as the aufopsy report indicates. What we see in the film is the tissue coming out here, but I do not believe there is sufficient evidence of the direction of its movement. I acknowledge that two masses fly upward and forward, but do not feel that conclusively indicative of the direction of the shot.

Pages 4-5 go into the nature of the simulants used in the tests. There are other details in other locations also. I think this might be my chief criticism of the tests. First, I cannot see how melons are a valid simulations of the head, even with the tape applied as "scalp". A bullet entering through the skin of the mellon (which is softer and more permeable than human muscle) obviously will behave differently than a bullet going through hard bone. This could very critically affect the amount of energy expended on exit, which I infer is what caused the melons to move backwards. I might have used even those life-size plastic skull models, filled with geletin--if real skulls could not be obtained. It is very important to simulate the impact withXXX that hard surface.

Another question is the comparison of how the head is attached to the body and how the melon was attached to the support. I infer that the melon was not attached in any way most of the time. This certainly is an important mitigating effect. A head is greatly limited in its movement because of the body, especially during the assassination where the President's body was partially anchored. Apparently, your melons were free to move unrestrained, which might affect the results.

I found no mention in your work of the area of the melon struck. Was it hit at the very top as we now know the President's head was? Was it hit dead center, or below center? I think this could have a great effect, as is illustrated in hitting billiard balls.

Another shortcoming which now strikes me is that you did not in part employ bullets which would not make neat entrances but which would explode on impact--varminting bullets. The movement of the melons seems to relate directly to the entrance-e xit phenominon, and I wonder what variations would be produced with a very frangible bullet.

At the bottom of page 5, the reference to material going backward and to the left is irrelevant. You can appreciate the mist-like natire of a lot of the stuff blaming out of the head, like the fine mist from an adjustible hose. If you spray such a mist into a strong wind, it will blow back on you. Notise the wind in Dealey Plaza at the time of the head shot. The spectators' coats lift up and blow to the left rear as all three films show. Obviously, this would have blown a lot of the mist from the head in that direction. Thus, I put nothing in the "blow-bakc."

At the top of page 7, you make a statement which is incorrect. "Regardless of any questions about the magnitude of the forward motion..., the forward motion (between 312 and 313) cannot be used as evidence for a shot from the front." This is wrong; that motion indicates front shot just as much as rear shot. Put yourself in JFK's position at 312. Now push down on your head from the front, about 2 inches above the right eye, as if a shot were hitting there from an elevation to the front. The initial motion will drive the head down. Because of the tilt of the head, the downward motion will draw the head slightly foward. I imagine the head would be pushed to the nadir of its downward arc and then contineue along the direction of the bullet, backwards.

Page 20, paragraph 2: You imply that the WC's tests managed to duplicate the head wound and the fragmenttation of the bullet as found on the front seat. First of all, if anything, those tests showed the Carcano could not produce the head woubds. Notice that none of the geletin in the skull was blown out, not even distorted. Whatever hit the President's head virtually removed half of his brain. As for the missing skull, note that there was no scalp covering that old, brittle skull. Living scalp retains the skull. Here there was nothing to retain. The damage shown on the test skull could have been produced with a hammer.

As for the fragmnetation of the bullet, its core separated from the jacket, as the front seat fragments did (though I cannot say whether the front seat ones were from the same bullet). However, this is merely the typlical nature of fragmentation of full jacket military rounds and could have been produced by firing into almost any sufficiently hard substance.

At page 23, para. 2, you seem to imply that 399 might have wounded the Governro. I really think this is unwarranted. I need not lecture you on the improbability of that for it had repeatedly been spelled out. Added to that, of course, is the spectrographic analysis which holds the conclusive answers and is suppressed. To ask why such evidence is suppressed is to me, virtually to know that it must be contrary to official fiction.

In your offerings of copies of the various photographs you prepared, I note that slide apparently were made from the films but copies of these are not available. I would like to know if I might obtain dupes of the 3 slides.

I think your initiative in undertaking these tests is quite commendable, as I think the idea behind them is extremely valuable. However, I hesitate to make any inferences from the tests because of the shortcomings which might seriously affect the results. If you have the time or the desire (and facilities), I suppose these shortcomings could be eliminated, as I see them.

To put my criticism into better focus, as the article stands, it seems to demonstrate that backward movement from a rear shot is entirely possible. The inference is obvious--from t he text and pictures, that backward motion is the expectable consequence of a rear shot. This is going to sway too many people in the wrong direction, I think. It is also going to provide welocme food for WR defenders, including the press who will doubtlessly use it to demonstrate further what fools the critics have been, what deceivers and distorters. Unfortunately, this potential danger looms larger in my view than the good aspects of your work, which will not be exploited by the press.

I hope you do not find these criticisms discouraging. (I am sending a carbon of this letter to Harold Weisberg for I know you have sent him a copy of your study. I have a carbon for Dick Bernabei which I will send if you OK it, as you have requested confidence in these matters.)

Again, mnay thanks for sending me your article.

Keep in touch,

Howard Roffman

P.S. Please call me Howard